

Report presented at the Conference on Heat and Transfer,
Moscow, USSR, 5-15 June 61.

RA-2852
25

270. V. I. Recovery, I. K. Tom, uation of Ladded at High Supersonic Gas Flow.
271. A. J. Ede, The Heat Transfer Coefficient for Flow in a Pipe.
272. S. I. Sobakov, L. S. Shchegolevo, Problems of Investigation of Slip and Reversal, Jolt as Factor of Air Flow Near the Solid Wall.
273. A. M. Bersenev, On Some Results of the Investigation of Heat Transfer by Boiled Gun at Natural Convection.
274. A. S. Golubov, O. I. Rozlyakov, Heat Transfer at the Process of Radiative-Conductive Heating by Internal Flow.
275. V. A. Ram, Influence of the Mass Transfer Coefficient on Interfacial Distribution in the Assembly of the Water-Vapour-Hydrogen-Cooling System.
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- V. K. Sobakov, Properties of Heat Transfer Through the Wall of the Longitudinal Pipe at Surface Boiling.
281. A. V. Ivan'yov, Investigation of Convective Heat Transfer in Nucleate Flow Viscous Fluid.
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283. I. T. El'strot, Internal Transition of Heat Transfer Between the Two Stages by Means of Intermediate Heat Transfer Device.
284. M. V. Shilov, S. G. Davtyan, The Theory of Thermal and Diffusive Conduction of Multidimensional Media.
285. Z. I. Mitropol'skii, M. E. Saltman, Critical Heat Flux at Water Boiling in Pipes.
286. I. V. Popov, Investigation of the Dependence of Boiling Heat Transfer on the Condition of Cooling of Heated Wall.

SHITSMAN, M.Ye.; MOSTINSKIY, I.L.

Temperature conditions in pipes of small diameter in the
high-speed movement of water and a steam-and-water mixture
[with summary in English]. Inzh.-fiz. zhur. 4 no.9:80-~~82~~
S '61. (MIRA 14:8)

1. Energeticheskiy institut im. G.M. Krzhizhanovskogo,
g. Moskva.
(Pipe--Hydrodynamics)

21408
S/089/61/011/006/004/014
B102/B138

21.100*

AUTHORS: Miropol'skiy, Z. L., Shitsman, M. Ye.

TITLE: Critical heat flows for water boiling in channels

PERIODICAL: Atomnaya energiya, v. 11, no. 6, 1961, 515 - 521

TEXT: Experimental data obtained by several authors are evaluated and analyzed by introducing dimensionless critical parameters. Such parameters may be interrelated by $\frac{q_{cr}l_0}{a'r\gamma''} = f(\frac{w_o^1}{\gamma'}, \frac{w_o^1}{a'}, \frac{r}{c_p T_s}, \frac{w_o''}{w_o^1}, \frac{\mu''}{\mu'})$ (1).

γ' - specific weight, (kg/m^3), γ - kinematic viscosity (m^2/sec), μ - dynamic viscosity ($\text{kg}\cdot\text{sec}/\text{m}^2$), σ - surface stress, r - evaporation heat, λ - heat conduction coefficient, a - thermal diffusivity, T_s - saturation temperature, w_o^1 , w_o'' - reduced velocities (m/sec), q - specific thermal flux, q_{cr} - specific critical heat flux, l_0 - characteristic length (m). Analysis of available data shows that channel cross-sectional dimensions

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Critical heat flows for...

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have no essential influence on q_{cr} if the internal diameter is more than 4 mm, the width of annular gaps more than 1 - 2 mm, and that of plane gaps more than 1.3 mm. If $x > 0$, q_{cr} is a hyperbolic function of the relative length l/d_{equ} . Since this is not a characteristic parameter, the quantity $\sigma/(\lambda' - \lambda)$ is chosen as characteristic length l_0 . (The singly primed quantities refer to the liquid, the doubly primed ones to the vapor). The effect of λ' on q_{cr} is negligible. If the parameter $W_0 l_0 / v'$ exists, $W_0 l_0 / \lambda'$ can be omitted. The rate of mass flow, W_s ($\text{kg}/\text{m}^2 \cdot \text{hr}$) is chosen as the characteristic of flow rate and phase composition of the boiling medium so that, instead of (1) $\frac{q_{cr} w}{\sigma \sqrt{r}} = f(\frac{W_s}{\sigma g}, \frac{l_0}{c_p T_s}, \frac{v'}{g}, \frac{\lambda}{r})$ (2)

can be taken as new "criterial system". The first parameter may be defined by

$$\frac{W_s w}{\sigma v'} = \left(\frac{F_r^*}{A_r^*} \right) \quad F_r^* = \frac{W_s}{g} \sqrt{\frac{Y' - Y}{\sigma}} \\ \text{if } A_r^* = \frac{g}{v'^2} \left(\frac{\sigma}{Y' - Y} \right)^{1/2} \left(1 - \frac{Y}{Y'} \right)^{1/2}. \quad (A),$$

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Critical heat flows for...

$r/c_p T_s$ may be regarded as a measure of thermodynamical similarity, $\Delta h/r = x$ is the relative enthalpy of the flow. The actual relations holding within system (2), as determined experimentally and given in the table. These relations are evaluated and discussed for the following special cases: (1) A non-pulsating system with $x > 0$, (2) a pulsating system with $x \gg 0$, and (3) a non-pulsating system with $x < 0$. The result of the last case, for instance, is given by

$$\frac{q_{\text{impl}}}{\sigma V r} = 0,174 \left(\frac{c_p' T_s}{r} \right)^{0,8} K_W^{0,4} \times \\ \times \left[1 - 0,45x \left(\frac{V'}{V^*} \right)^{0,85} \right]. \quad (6).$$

It is valid if $q_{\text{cr}} > q_s$, and the thermal flow is given by

$$q_s = 0,023 \frac{\lambda}{d} P_r^{0,4} \left(\frac{W \rho d}{\mu g} \right)^{0,8} (t_s - t_u). \quad (7).$$

The relations are illustrated by graphs. There are 4 figures, 1 table, and 14 references: 10 Soviet and 4 non-Soviet. The three references to English-language publications read as follows: H. Jacket, J. Rourty, Card 3/6 ✓

Critical heat flows for...

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B102/B138

J. Zerbe. Trans. ASME, 80, 2, 391, 1958; D. Bell. Nuclear Science and Eng., v. 7, No. 3, 245 (1960); H. Buchberg. Studies in boiling heat transfer Final Report 1951. U. S. Atomic Energy Commission.

SUBMITTED: April 8, 1961

Legend to the Table: (1) Shape of channel, (2) cross-sectional dimensions, (3) l/d_{equ} , (4) p , (5) w_g , kg/m²sec; (a) tube, (b) plane gap, (c) annular channel (measurements carried out by the authors together with I. L. Mostinskiy and L. Ye. Faktorovich).

Fig. 3. q_{cr} in dependence on w_g and x for a pulsating system. • - cylindrical tube, o - annular channel (cf. Table).

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S194/E9D

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Whiteman, J.E., Candidate/Technical Sciences

J. Eng.

J. Eng.

An investigation of heat transfer with cooling
water near the critical region

JOURNAL: Teploenergetika, no.1, 1962, 35-86

In modern practice the heat-transfer medium is often near critical conditions but information on cooling the media under these conditions is sparse and not specially reliable. It is accordingly necessary to make tests of heat transfer with a number of fluids over a wide range of parameters. This article gives results of tests made with water at $p = 220/260$ atm, $w_g = 100 - 1500 \text{ kg/m}^2\cdot\text{sec}$; $\dot{q} = 0.250-5.0$ million kcal/ $\text{m}^2\cdot\text{hour}$, $t_w = 300-425^\circ\text{C}$; $t_{CT} = 260-380^\circ\text{C}$ (throughout this article the suffix CT corresponds to the flow conditions and the suffix CI to wall conditions). The tests were made on open-cycle equipment supplied with steam at 300 atm pressure; the test pieces were thick-walled tubes of copper and carbon steel. The instrumented experimental procedure and results are described. For a

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An investigation of heat ...

steel tube, most test results lay within $\pm 2\%$ of a curve corresponding to the following equation (which is a modification of the well-known Mikheyev equation).

$$Nu_n = K \cdot Re_n^{0.8} (Pr_n \cdot Pr_{ct})^{0.4+n} \quad (6)$$

where

$$n = 0, \text{ if } t_n \leq t_M \text{ or } t_{ct} \geq t_M$$

$$n = 0.11 \frac{p_{sp}(t_n - t_M)(t_M - t_{ct})}{s(t_n - t_{ct})}$$

If $t_{ct} \leq t_M \leq t_n$: $K = 0.028$ for steel tube of rough surface, t_M is the temperature at which C_p is a maximum on the given isotherm. Results for copper tube over the pressure range 225-260 atm also lie within $\pm 10\%$ of a similar expression, except that $S = 0.048$, whatever the ratio of the length to diameter ratio s .

Card 6/2

X
A

SHITSMAN, M.Ye.

Heat transfer crisis in steam generating channels. Inzh.-fiz.zhur.
5 no.9:9-15 S '62. (MIRA 15:8)

1. Energeticheskiy institut imeni G.M.Krzhizhanovskogo, Moskva.
(Boilers)

S/862/62/002/000/007/029
A059/A126

AUTHORS: Miropol'skiy, Z.L., Shitsman, M.Ye.

TITLE: Critical heat flows in the boiling of water in channels

SOURCE: Teplo- i massoperenos. t. 2: Teplo-i massoperenos pri fazovykh i khimicheskikh prevrashcheniyakh. Ed. by A.V. Lykov and B.M. Smol'skiy. Minsk, Izd-vo AN BSSR, 1962, 87 - 93

TEXT: Experimental data obtained by various authors on critical heat flows are treated with the aid of dimensionless criteria, and recommendations are given for the calculation of these heat flows involving that of a steam-and-water mixture and of water underheated below saturation temperature in tubes, ring- and flat-slit channels. The following critical system for the onset of critical boiling with forced liquid flow in channels has been previously derived (ref. 1: ZhTF, v. 23, vyp. 2, 1953):

$$\frac{q_{cr} l_0}{a' r \bar{T}''} = f \left(\frac{w_0 l_0}{v'} \cdot \frac{w_0 l_0}{a'} \cdot \frac{r}{c_p T_s} \cdot \frac{w_0^*}{w_0} \cdot \frac{\bar{T}''}{\bar{T}'} \right), \quad (1)$$

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Critical heat flows in the boiling of

where q_{cr} is the respective critical heat flow, l_0 the characteristic linear dimension, a' the temperature coefficient of the thermal conductivity of the liquid, r the heat of evaporation, γ' and γ'' the specific gravities of the liquid and the steam, respectively, on the saturation line, w_0 and w_0'' the reduced velocities of the liquid and the steam, respectively, on the saturation line, v' the kinematic viscosity of the liquid, c_p' the thermal capacity of the liquid, and T_s the absolute saturation temperature. When channels with $d > 4$, the width of the flat slit $\delta_{slit} < 1.3$, and $1/d_{equ} < 100$ are excluded, the geometric dimensions of the channel need not be considered in equation (1). For the forced flow of the boiling liquid in the channels,

$$l_0 = f(w_0, w_0'', \gamma', \gamma'', \sigma),$$

where σ is the surface tension, and the criterion $w_0 l_0 / a'$ in the system (1) can be excluded in the presence of the criterion $w_0 l_0 / v'$. When the rate of mass flow, w_g , and the relative enthalpy, Δi , are introduced, we obtain

$$\frac{q_{cr} \mu'}{\sigma' r} = f \left(\frac{w_g \mu'}{\sigma' r}, \frac{r}{c_p' T_s}, \frac{\gamma'}{\gamma''}, \frac{\Delta i}{r} \right) \quad (2)$$

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S/862/62/002/000/007/029
A059/A126

Critical heat flows in the boiling of

where μ is the dynamic viscosity. Two cases are to be considered: a) that with the free development of fluctuations and a compressible medium between the heated section and the throttling member or the circulation impeller, and b) that with a limited development of fluctuations, in the presence of an incompressible medium at this place. Under non-fluctuating conditions and with $x (= \Delta i/r) > 0$ in tubes and annular channels,

$$\frac{q_{cr} \mu'}{\sigma \gamma' r} = 0.174 \left(\frac{c_p T_s}{r} \right)^{0.8} K_w^{0.4} (1 - x)^n, \quad (3)$$

where $K_w = \frac{w_K \mu'}{\sigma \gamma'} \left(\frac{r'}{r} \right)^{0.2}$, and, in flat-slit channels,

$$\frac{q_{cr} \mu'}{\sigma \gamma' r} = 0.224 \left(\frac{c_p T_s}{r} \right)^{0.8} K_w^{0.4} (1 - x)^n. \quad (4)$$

Under fluctuating conditions and $x > 0$,

$$\frac{q_{cr} \mu'}{\sigma \gamma' r} = 0.7 \left(\frac{c_p T_s}{r} \right)^{0.8} K_w (1 - x)(1 + 4x); \quad (5)$$

and under non-fluctuating conditions and $x \leq 0$,

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Critical heat flow in the boiling of ...

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$$\frac{q_{cr}^*}{\gamma' r} = 0.174 \left(\frac{c_p T_s}{r} \right)^{0.8} \lambda_{\text{air}}^{0.4} \left[1 - 0.45 \times \left(\frac{t_f}{T_s} \right)^{0.8} \right]. \quad (6)$$

A satisfactory agreement was found between calculated and experimental data. At high velocities of flow and high negative values of x , the equation

$$q_s = 0.023 \frac{\lambda}{d} \rho r g \left(\frac{m_f d}{\rho g} \right)^{0.8} (t_s - t_f) \quad (7)$$

holds, where λ is the coefficient of heat conduction, g acceleration due to gravity, t_s the saturation temperature, and t_f the temperature of flow when $q_{cr} > q_s$. I.L. Mostinskiy and L.Ye. Faktorovich are mentioned. There are 4 figures and 1 table.

ASSOCIATION: Energeticheskiy institut im. G.M. Krzhizhanovskogo (Power Engineering Institute imeni G.M. Krzhizhanovskiy)

Card 4/4

SHETIGMAN, M.Ye.

Witerioration of heat transfer conditions at supercritical pressures. Teplofiz. vys. temp. i no.2;267-275 S-0153.

(MIRA 1715)
L. Moscowvskiy energeticheskiy institut imeni A.N.Semenova.

M. SOLODOVNIKOV, V. A. SHULMAN, M. YEV, PIKUS, V. Yu.

Effect of the frequency and amplitude of flow pulsations on
critical heat fluxes. Inzh. fiz. zhur. 7 no.6(13-15) '64.

(MIR 17;12)
1. Energosicheskiy institut imeni G.M. Krzhizhanovskogo, Moscow.

SHITSMAN, M. Ye.

"Deteriorating regimes of heat transfer at above-critical pressures."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Krzhizhanovskiy Power Inst.

MIROPOL'SKIY, E.L., kand. tekhn. nauk; SHITSMAN, M.Ye., kand. tekhn. nauk;
SHNEYEROVA, R.I., inzh.

Effect of the heat stream and velocity on the hydraulic resistance
of a steam and water mixture in pipes. Teploenergetika 12 no.5:67-
70 My '65. (MIRA 18:5)

1. Energeticheskiy institut im. G.M.Krzhi zhanovskogo.

1 411-36 ENT(i) MM

ACC NR: AP6019732

SOURCE CODE: UR/0096/66/000/007/0051/0056

AUTHOR: Shitsman, M. Ye. (Candidate of technical sciences)

71
D

ORG: Power Engineering Institute im. G. M. Krzhizhanovskiy (Energeticheskiy Institut)

TITLE: The effect of free convection on the temperature conditions of horizontal tubes under supercritical pressure

SOURCE: Teploenergetika, no. 7, 1966, 51-56

TOPIC TAGS: thermal convection, convective heat transfer, superhigh pressure, steam boiler, turbulent flow, vortex generator, pipe /Kh18N9T steel

ABSTRACT: The authors present the results of a study on temperature conditions of a horizontal pipe which is uniformly heated along its perimeter. The pipe is 16 mm in diameter and 1600 mm long. A survey of the literature shows that temperature conditions for long horizontal steam-producing pipes used in single-pass boiler construction at nearly critical and supercritical pressures cannot be even qualitatively evaluated if the pipes are 16 mm or more in diameter. Heat transfer was studied at the Power Engineering Institute imeni G. M. Krzhizhanovskiy in order to solve this problem. Heat transfer from the 2 mm wall of a horizontal 1Kh18N9T steel tube 20 mm in diameter was studied. A special stand was used which was set up at one of the Moscow heat and electric power plants. Supply water was fed to the stand at $140 \cdot 10^5 \text{ N/m}^2$.

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UDC: 621.1.016.4

ACC NR: AP6019732

A three-piston pump was used for producing very high and supercritical supply water pressures. The required medium parameters such as temperature, pressure and flow rate were set by controlling throttle valves and the thermal load on the steam and electric heaters. Chromel-alumel thermocouples were welded to the pipe walls for temperature measurement. Several test series were done at given pressures, flow rates and temperatures of the medium at the entrance of the experimental tube. The heat load was varied from test to test. Graphs are given showing the temperature distribution of the inside wall of the tube along the upper and lower generatrices under turbulent motion of the water (Re_{in} greater than 10^4), pressures (98, 196, 245 and 295).

$\cdot 10^5 \text{ N/m}^2$, mass velocity of approximately $375 \text{ kg/m}^2 \text{ sec}$ and heat stream variation from 0.33 to 0.45 Mw/m^2 . The convergence and deviations in the temperature conditions along the upper generatrices of the tube in the comparative tests is explained by the fact that bubbling boiling takes place on certain parts of the upper generatrix at nearly critical pressures. This bubbling intensifies heat exchange. An expression is given for determining tube wall temperature. This expression is used for setting up a nomogram for various pressures. The results of the study show that considerable disturbance of temperature conditions occurs during the motion of the medium in horizontal baffles at supercritical pressures and where velocities are less than $1000 \text{ kg/m}^2 \text{ sec}$. Vortex generators can be used to intensify heat exchange and reduce the temperature gradient along the upper and lower generatrices of horizontal tubes. Two experiments were set up where all the parameters were approximately the same and the

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ACC NR: AF6019732

same tube was used with and without vortex generators. The use of vortex generators practically eliminated stratified flow of the medium and the consequent temperature gradient along the upper and lower generatrices. Orig. art. has: 7 figures, 4 formulas.

SUB CODE: 20/ SUBM DATE: None/ ORIG REF: 007/ OTH REF: 002

Card 3/3 L

SHITSMAN, S.O., inzh.; PEKARSKIY, V.G., inzh.

Unit for heating buildings in the winter. Transp stroi. 12
no.3:53-54 Mr '62. (MIRA 16:11)

SHITSMAN, S.O., inzh.

Readers' conference in Odessa, Transp. stroi, 14 no. 6:18 Je '64.

UT-130 all-purpose heat generator. Ibid. 14:49-50

(MIRA 18:2)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549620006-8

SHITSMAN, S.O., inzh.

Modernization of motor cranes. Stroi. i dor. mash. 9 no. 12:16-17
D '64. (MIRA 18:3)

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549620006-8"

SHITSMAN, S.Ye.

SHITSMAN, S.Ye., inzhener.

"Controlling the humidity of fuel, fluegases and of the condensation point."
M.S.Maslenikov. Reviewed by S.E.Shiteman. Elek.sta. 25 no.5:63-64 My '54.
(MLRA 7:6)

(Maslenikov, M.S.) (Steam boilers)

SHITSMAN, S. E.

PERIODICAL ABSTRACTS

Sub.: USSR/Engineering

AID 4171 - P

SHITSMAN, S. E.

PREDUPREZHDENIYE KORROZII VOZDUKHOPODOGREVATELEY (Corrosion prevention in air heaters). Teploenergetika, no. 2, F 1956: 37-40.

Various corrosion prevention measures taken at present are discussed. The author recommends the use of ribbed cast iron pipes and horizontal tubular air heaters. Eight diagrams.

SANDLER, A.S., kand.tekhn.nauk, dotsent; SHITSMAN, S.Ye., inzh.

Experimental investigation of a drive motor with rotating
stator for regulating the speed of exhaust fans. Izv. vys.
ucheb.zav.; energ. no.5:25-33 My '58. (MIRA 11:8)

1. Moskovskiy ordena Lenina energeticheskiy institut (for Sandler).
2. Moskovskoye rayonnoye upravleniya energokhozyaystva (for Shitsman).
(Fans, Mechanical--Electric driving)
(Electric motors, Induction)

AUTHOR: Shitsman, S.Ye., Engineer SOV/96-58-5-19/27

TITLE: The Dew-point and Corrosive Activity of Flue Gases
(Tochka rosy i korroziynaya aktivnost' dymovykh gazov)

PERIODICAL: Teploenergetika, 1958, Nr 5, pp 74 - 77 (USSR).

ABSTRACT: This is a general review of foreign literature on corrosion of heating surfaces, with particular reference to corrosion when the metal temperature is below the dew-point of acid vapour and above that of water vapour; also to corrosion at and below the dew point of water vapour. The first part of the article discusses the SO_3 content of flue gases and the dew point of sulphuric acid vapour. The corrosivity of flue gases is then considered. Many investigators believe that the intensity of corrosion is determined by the quantity of sulphuric acid deposited on the surface. Measures to prevent corrosion of air-heaters are then discussed. One practice is to reduce the SO_3 content of the flue gases, particularly when fuel oil is burned or chain-grate stokers are used and the dew point is high. In foreign power stations, the addition of dolomite to the flue gases is sometimes favoured. The results of this foreign work show that considerable increase in the acid dew point as against the water vapour dew point

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SOV/96-58-5-19/27

The Dew-point and Corrosive Activity of Flue Gases

has been established only for fuel oil, and for chain-grate stoking. The SO_3 content of the flue gas and the dew point depend not only on the sulphur content of the fuel, but also on design and operating conditions in the furnace. The rate of corrosion becomes catastrophic if the air-heater surface becomes wet and ash deposits are formed on it. The practical effectiveness of relatively simple measures for reducing such corrosion has been demonstrated.

There is an editorial note that although foreign work suggests the absence of an acid dew-point when burning pulverised, sulphurous fuels, such conclusions do not agree with the results of Soviet investigators. When burning pulverised, sulphurous fuel such as Moscow Basin or Kizel coal, the dew points are 140 - 150 °C. It is also doubtful whether the dew point is really independent of the sulphur content of the fuel. The corrosion curve given in Figure 6 does not agree with

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SOV/96-58-5-19/27

The Dew-point and Corrosive Activity of Flue Gases

results published in Teploenergetika, nr 12, 1957.

There are 7 figures, 1 table and 21 references, of which 3
are Soviet and the remainder English or German.

- 1. Waste gases--Condensation
- 2. Waste gases--Corrosive effects
- 3. Fuels--Performance

Card 3/3

SHITSMAN, S., inzh.

Gas dryer. Stroitel' no.9:18 S '59.
(Drying apparatus)

(MIRA 13:3)

SHITSMAN, S., inzh.

Lifting-capacity controller for tower cranes. Stroitel'
no.12:14 D '59. (MIRA 13:3)
(Cranes, derricks, etc.)

NEMOV, A.P., inzh.; SHITSMAN, S.Ye., inzh.

Some problems in the operation of thermal electric power plants.
Teploenergetika 7 no.11:3-8 N '60. (MIRA 14:9)

1. Moskovskoye rayonnoye upravleniye energokhozyaystva.
(Electric power plants)

SHITSMAN, S.Ye., inzh.

From the practice of applying principal methodological regulations
on engineering and economic calculations in power engineering.
Teploenergetika 7 no. 12:63-66 D '60. (MIRA 14:1)

l. Mosenergo.
(Power engineering)

SHITSMAN, S.Ye., inzh.

Quality indicators of the coal from Moscow region. Elek.sta.
31 no.1:12-14 Ja '60. (MIRA 13:5)
(Moscow region--Coal--Analysis)

YELIZAROV, Pavel Pavlovich; SHITSMAN, S.Ye., inzh., retsenzent;
KATKOVSKAYA, K.Ya., red.; VORONIN, K.P., tekhn.red.; LARIONOV,
G.Ye., tekhn.red.

[Operating high-pressure boiler units at electric power plants]
Ekspluatatsiya kotel'nykh ustyanovok vysokogo davleniya na
elektrostantsiiakh. Moskva, Gos.energ.izd-vo, 1961. 399 p.
(MIRA 14:6)

1. Moskovskiy ordena Lenina energeticheskiy institut (for
Shitsman).

(Boilers) (Steam power plants)

SHITSMAN, S.Ye., inzh.

Letter to the editor. Teploenergetika S no.10:95-96 G '61.
(LIA 14:10)
(Electric power stations—Valuation)

SHITSMAN, S. Ye., inzh.

Decrease in the loss of condensate at electric power plants.
Energetik 9 no.5:11-13 My '61. (MIRA 14:5)
(Feed-water purification)
(Electric power plants)

IVANOV, A.V., inzh.; SHITSMAN, S.Ye.

Quantitative and qualitative accounting of gas at electric power
plants. Elek. sta, 32 no. 5:19-23 My '61. (MIRA 14:5)
(Electric power plants) (Gas, Natural)

SHITSMAN, S.Ye., inzh.

Establishment of rates on thermal power. Elek. sta. 34
no.3:28-32 Mr '63. (MIRA 16:3)
(Electric power plants)
(Heating from central stations)
(Electric power)

SHITSMAN, S.Ye., inzh.

Methodology for normalizing and accounting for the technological
and economic indices of thermal electric power plants. Elek.
sta. 32 no.2:4-7 F '61. (MIRA 16:7)
(Electric power plants)

SHITSMAN, S.Ye., inzh.

Concerning the article "Methodology for normalizing and accounting for the technological and economic indices of thermal electric power plants." Elek. sta. 34 no.8:80-83 Ag '63. (MIRA 16:11)

BELYANIN, P.A., inzh.; SHITSMAN, S.Ye., inzh.

Practices in the operation and the economic effectiveness of
peak water-heating boilers at thermal electric power plants.
Nov. tekhn. zhil.-kom. khoz.: Elek. i tepl. gor. no.5:78-85
'64.
(MIRA 18:2)

1. Moskovskoye rayonnoye upravleniye energeticheskogo khozyaystva.

SCHLESINGER, S.Ye., inzh.

Obsolescence of machinery in electric power plants. Elek.
sta. 35 no. 5, 24-26 May '64, (MIRA 1738)

SHITT, P. G.

Kvarntshalia, T. K., Shitt, P. G. and Edel'shteyn, V. I. "The trend in training
agronomical personnel for subtropical farming," (Articles) Vestnik vysh. shkoly,
1949, No. 3, p. 27-33

SO: U-4934, 29 Oct 52, (Leto) is 'Zhurnal 'nykh Statey, No. 16, 1949).

MAZEL', Yu.Ya.; RACHINSKIY, V.V.; TAO DZHUN¹-VEN¹; SHITT, T.P.

Determining free phosphorus in soil. Pochvovedenie no.8:101-103
(MIRA 16:9)
Ag '63.

1. Moskovskaya sel'skokhozyaystvennaya akademiya imeni K.A.
Timiryazeva.

SHAKASHVILI, M.I.

Two-dimensional quantitative spectral classification of F0--G5 stars based on objective-prism spectra, and the construction of a spectrum -- absolute magnitude diagram. Soob. AN Gruz. SSR 39 no.3:561-567 S '65. (MIRA 18:10)

1. Abastumanskaya astrofizicheskaya observatoriya na gore Kanobili AN GruzSSR. Submitted May 28, 1965.

SEMENTIN, N.; TERENT'YEVA, T., doverennyy vrach; GONTAR', I., pomoshchnik stalevara; BUKHALO, I., slesar', strakhovoy delegat; KOVALEVSKAYA, Z., portnikha po remontu spetsodezhdy, strakhovoy delegat; SHITUNOV, L., kontroler; CHAYKA, M., inzh., strakhovoy delegat; KOZHEMYAKIN, P., normirovshchik; ALAKOZOVA, L., fel'dsher; TSOLOLO, F., slesar'

Let's have more of active initiative and interest. Okhr. truda i
sots. strakh. no.2:9-10 Ag '58. (MIRA 12:1)

1. Strakhovoy aktiv Zhdanovskogo metallurgicheskogo zavoda "Azovstal'" (for all). 2. Predsedatel' zavkoma profsoyuza zavoda "Azovstal'" (for Sementin). 3. Chlen komiteta martenovskogo tsekha zavoda "Azovstal'" (for Gontar'). 4. Mekhanicheskiy tsekha zavoda "Azovstal'" (for Bukhalo). 5. Predsedatel' mestnogo komiteta medsanchasti zavoda "Azovstal'" (for Kozhemeyakin). 6. Re'l-so-balochnyy tsekha zavoda Azovstal'" (for Kutseval'). 7. Utdel tekhnicheskogo kontrolya liteynogo tsekha i chlen komissii zavkoma po sotsial'nому strakhovaniyu zavoda "Azovstal'" (for Shitunov) 8. Domennyy tsekha zavoda "Azovstal'" (for Chayka). 9. Zamestitel' predsedatelya tsekhochnogo komiteta mekhanicheskogo tsekha No.1 zavoda "Azovstal'" (for Kozhemeyakin). 10. Medsanchast' zavoda "Azovstal'" i chlen komiteta zavodskoy organizatsii Krasnogo Kresta (for Alakozova). 11. Predsedatel' komissii po sotsial'nemu strakhovaniyu tsekha blyuming zavoda "Azovstal'" (for TSolo).
(INDUSTRIAL HYGIENE)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549620006-8

СУТЯКОВ, В. В.

СУТЯКОВ, В. В.: "A problem opposite to the Cauchy-Kovalev problem for certain classes of equations for partial derivatives." Ukrainian State Order of Lenin Red Banner University V. I. Ulyanov Lenin. Khar'kov, 1951. (Dissertation for the Degree of Candidate in Physico-mathematical Sciences.)

Издательство Университета, №. 36, 1956. Moscow.

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549620006-8"

39389
S/044/62/000/006/020/127
B158/3112

ACT. OR: Shityakov,

TITLE: An inverse problem to the Cauchy-Kovalevskaya problem for certain classes of non-linear equations

PERIODICAL: Referativnyj zhurnal. Matematika, no. 6, 1962, 64-65,
abstract 6B271 ((Uch. zap.) Chelyab. gos. ped. in-t, v. 5,
no. 3, 1960, 297-303)

TEXT: In the work a study is made of the necessary and sufficient conditions defining the structural properties of the initial data of Cauchy and of the equations themselves for the equations under consideration to assume analytic solutions with respect to t in the neighborhood of $t = 0$. First is considered an equation of the form

$$\frac{\partial^p z}{\partial t^p} = p(x) \left(\frac{\partial^q z}{\partial x^q} \right), \quad (1)$$

where $p < q$; $p \geq 2$, $p(x)$ is a polynomial of degree r . For equation (1) is proved Theorem 1. For equation (1) to have a solution analytic with

Card 1/5

S/044/62/003/006/020/127
B156/B112

An inverse problem ...

respect to t in the vicinity of $t = 0$ satisfying the initial data

$$\left. \frac{\partial^k z}{\partial t^k} \right|_{t=0} = 0, \quad k=1, 2, \dots, p-1 \quad \left. \right\} \quad (2)$$

where $\psi(x)$ is a polynomial of degree m , it is sufficient, and in the case of non-negative coefficients of polynomials $P(x)$ and $\psi(x)$ and $m > q$ necessary that

$$m \leq \frac{qs-1}{s-1}. \quad (3)$$

Here, if

$$m < \frac{qs-1}{s-1} \quad (4)$$

then the solution will be a polynomial with respect to t and x . Further, the author considers an equation

$$\frac{\partial^p z}{\partial t^p} = P_0(x) + \sum_{k=1}^s P_k(x) \left(\frac{\partial^{l_k} z}{\partial x^{a_k}} \right)^2 \quad (5) \quad (a_1 \leq a_2 \leq \dots \leq a_s),$$

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S/044/62/000/006/020/127
B158/E112

An inverse problem ...

where $P_0(x)$, $P_k(x)$ are polynomials respectively of degrees m_0 and m_k ($k = 1, 2, \dots, s$). The initial data are selected in the form:

$$\frac{d^k z}{dt^k} |_{t=0} = 0, k = 0, 1, 2, \dots, p-1. \quad (6)$$

The following theorem is established: Theorem 2. For equation (5) to have a solution analytic with respect to t in the vicinity of $t=0$ satisfying the initial data (2), it is sufficient that

(7)

$m_0 \leq 2q_k - m_k$; where, if for all $k = 1, 2, \dots, s$ $m_0 < 2q_k - m_k$, then the solution will be a polynomial with respect to t and x . Then it is proved the Theorem 3. If such k and j exist that 1) $m_0 > q_k$, $m_0 > 2q_k - m_k$ for at least one $k = 1, 2, \dots, s$; 2) $q_j > \mu P$, for at least one value of j , for which $m_0 + (\mu-2)(m_0 - 2q_k + m_k) > 2q_j - m_j$, then equation (5), where $P_k(x)$ ($k = 0, 1, \dots, s$) is a polynomial with non-negative coefficients, does not have a solution.

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B158/B112

An inverse problem ...

analytic with respect to t in the vicinity of $t = 0$, satisfying the initial data (6). The work concludes with a consideration of the equation

$$\frac{\partial P_z}{\partial t^p} = P_0(x) + \sum_{k=1}^1 P_k(x) \frac{\partial^{q_k} z}{\partial x^{q_k}} + \sum_{s=1+2}^r P_s(x) \left(\frac{\partial^{q_s} z}{\partial x^{q_s}} \right)^2, \quad (8)$$

where $P_0(x)$, $P_k(x)$ ($k = 1, 2, \dots, 1$), $P_s(x)$ ($s = 2+1, 2+2, \dots, r$) are polynomials with non-negative coefficients respectively of degrees m_k and m_s . For equation (8) we have Theorem 4. Equation (8) does not have a solution, analytic with respect to t in the vicinity of $t=0$, satisfying the initial data (6), if just one of the following conditions is fulfilled:

1) For equation

$$\frac{\partial P_z}{\partial t^p} = P_0(x) + \sum_{k=1}^1 P_k(x) \left(\frac{\partial^{q_k} z}{\partial x^{q_k}} \right), \quad (9)$$

exist such i and j that $m_i > q_i$, $m_0 \geq q_i$

Carl 4/5

An inverse problem ...

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3158/B112

$$(q_j - p)(m_i - q_i) + (p - q_i)(m_j - q_j) > 0 \quad q_i < p < q_j.$$

2) For equation

$$\frac{\partial^p z}{\partial t^p} = P_0(x) + \sum_{s=1+1}^r P_s(x) \left(\frac{\partial^{q_s} z}{\partial x^{q_s}} \right)^2 \quad (10)$$

the conditions of the previous theorem are fulfilled.

3) Such k and s exist that a) $m_k > q_k \geq m_0 \geq q_k$, b) $q_s > \mu p$, where $m_0 + (\mu-1)(m_k - q_k) > 2q_s - m_s$. In the author's opinion, these theorems may be generalized also for a series of equations of a more general order. The work concludes with yet another theorem (without proof) for equation (1), Theorem 5. Equation (1), where $p(x)$ is a polynomial with non-negative coefficients of an arbitrary degree, does not have an analytic solution satisfying the initial data (2) if $\psi(x)$ is an arbitrary function of a certain *Sevre* class (Hadamard, F., Le probleme de Cauchy, Paris, 1932).
 [Abstracter's note: Complete translation.]

Jard 5/5

16.3500

S/044/62/000/006/021/127
B158/B112AUTHOR: Shityakov, M. A.

TITLE: The converse of the Cauchy-Kovalevskaya problem for certain classes of differential equations

PERIODICAL: Referativnyj zhurnal. Matematika, no. 6, 1962, 65, abstract SB273 ((Uch.zap.) Chelyab. gos. ped. in-t, v. 5, no. 3, 1960, 322 - 324)

TEXT: The work is devoted to an examination of a problem which is the converse of the Cauchy-Kovalevskaya problem for an equation of the form

$$\sum_{i=1}^s f_i(t, x) \frac{\partial^{p_i} z}{\partial t^{p_i}} = \frac{\partial^q z}{\partial x^q}, \quad (1)$$

where $p_1 \leq p_2 \leq \dots \leq p_s = p < q$; in the Jevre sense, $f_i(t, x)$ are analytic with respect to t in the vicinity of $t = 0$, and in the vicinity of the class $\alpha = \frac{p+1}{q} \geq 1$ with respect to x .

Card 1/3

S/044/62/000/006/021/127
B156/B112

The converse of the ...

$$\sum_{i=1}^s f_i(t, x) \frac{r_i}{m_i} \frac{\partial^{p_m i} z}{\partial t^{m_i}} = \frac{\partial^q z}{\partial x^q}, \quad (2)$$

$$\sum_{i=1}^s \frac{r_i}{m_i=1} \frac{\partial^{p_m i} z}{\partial t^{m_i}} = \frac{\partial^q z}{\partial x^q}, \quad (3)$$

where $\max \{p_m\} = p < q$; $f_i(t, x)$ are analytic with respect to t in the vicinity of $t = t_0$ and of the class $\mathcal{L} = \frac{rp+r-1}{q} \geq 1$ ($r = \max \{r_k\} \geq 2$) in the Jevre sense with the initial data

$$\left. \frac{\partial^k z}{\partial t^k} \right|_{t=t_0} = \psi_k(x), \quad (k = 0, 1, 2, \dots, p-1). \quad (4)$$

For the investigation, the author introduces the concept of necessary weight for a general equation of the form
Card 2/3

The converse of the ...

S/044/62/000/006/021/127
B158/B112

$$\frac{D_z}{D_t^p} = f(t, x, z, \frac{\partial z}{\partial t}, \frac{\partial z}{\partial x}, \dots). \quad (5)$$

Definition. The number ξ is termed the necessary weight of equation (1), if for the existence of a solution for equation (1) that is analytic with respect to t in the vicinity of $t=t_0$ the initial data (4) must belong to

the domain under consideration, i. e., possess continuous derivatives up to the ξ -th order. The following theorems hold for equations (1)-(3) with the initial data (4). Theorem 1. The necessary weight of equation (1) is equal to $\omega = \frac{n+1}{q}$. Theorem 2. The necessary weight of equations (2) and (3) is equal to $\omega = \frac{r_0+r-1}{q}$. [Abstracter's note: Complete translation.]

Card 3/3

CHIZHKOV, B., tokar'; VERGEYCHIK, A., tokar'; SMIRNOV, M.; KRASOVSKIY, N.; SHITYKO, P.; CHAYKA, D.; MAZURENKO, P.

Same conditions bring different results. Okhr. truda i sots. strakh.
no.1:30-33 Jl '58. (MIRA 11:12)

1. Instrumental'nyy tsekh Minskogo podshipnikovogo zavoda (for Chizhkov, Vergeychik). 2. Starshiy inzhener po tekhnike bezopasnosti Minskogo podshipnikovogo zavoda (for Smirnov). 3. Sekretar' re-daktsii zavodskoy mnogotirazhki "Za tekhnicheskiy progress" Minskogo podshipnikovogo zavoda (for Krasovskiy). 4. Glavnyy tekhnicheskiy inspektor Belsovprofa (for Shityke). 5. Spetsial'nyy korrespondent zhurnal'a Vsesoyuznogo tsentral'nogo soveta profsoyuzov "Okhrana truda i sotsial'noye strakhovnaiye" (for Mazurenko).
(Minsk--Industrial hygiene)

SNIUKASHVILI, N.N.

Fibrillar structures in the precancerous growth and cancer
of the human mammary gland. Soob. AN Gruz. SSR 38 no. 3:
669-676 Je '65. (MIRA 18:12)

SHIUKOV,A.

Encounters with P.N.Nesterov on his 65th birthday. Kryl.rod. 3
no.2:14-16 F '52. (MIRA 8:8)
(Nesterov, Petr Nikolaevich, 1887-)

SHTODA, Andrey Vladimirovich, dots., kand.tekhn.nauk; ALESHCHENKO, Stepan Pavlovich, dots., kand. tekhn. nauk; IVANOV, Aleksandr Yakovlevich, dots., kand. tekhn. nauk; KRASAVTSEV, Vsevolod Semenovich, dots., kand. tekhn. nauk; MOROZOV, Fedor Nikolayevich, dots., kand. tekhn. nauk; SEKISTOV, Viktor Anatol'yevich, dots., kand. tekhn. nauk; SHIUKOV, Aleksandr Georgiyevich, dots., kand. tekhn. nauk; DENISOV, I.T., retsenzent; NOVAK, D.A., red.; SOLOMONIK, R.L., tekhn. red.

[Design of airplane gas-turbine engines] Konstruktsiia aviatsionnykh gazoturbinnykh dvigatelei. Moskva, Voen.izd-vo M-va obor. SSSR, 1961. 411 p.

(MIRA 15:1)

(Airplanes—Turbojet engines)

SHUKOV, A.G.

2

PHASE I BOOK EXPLOITATION

SCV/5958

Shtoda, Andrey Vladimirovich, Doctor, Candidate of Technical Sciences,
Stepan Pavlovich Aleshchenko, Aleksandr Yakovlevich Ivanov, Vsevolod
Semenovich Krasavtsov, Fedor Nikolayovich Morozov, Viktor Anatol'yevich
Sokistov, and Aleksandr Georgiyevich Shukov

Konstruktsiya aviationsykh gazoturbinnykh dvigateley (Construction of Aircraft
Gas-Turbine Engines) Moscow, Voznizdat M-va obr. SSSR, 1961. 411 p.
Errata slip inserted. No. of copies printed not given.

Ed.: D. A. Novak; Tech. Ed.: R. L. Solomonik.

PURPOSE: This textbook is intended for the engineering, technical, and flying
personnel of the Soviet Air Force, Civil Air Fleet, and All-Union Voluntary
Society for the Promotion of the Army, Aviation, and Navy. It may also be
useful to students at aeronautical schools.

COVERAGE: General information on the construction of Soviet and non-Soviet
aircraft gas-turbine engines is presented. Soviet engines considered are the

Card 1/8

Construction of Aircraft (Cont.)

SCV/5958

RD-10, RD-20, RD-500, RD-45, VK-1, AI-20, AM-3, and AM-5. The book was written as follows: Foreword, by A.V. Shtoda; Chs. I and VII, by A. G. Shiuikov and V. S. Krasavtsev; Ch. II, by V. A. Sekistov; Ch. III, by S. P. Aleshchenco; Chs. IV and V, by F. N. Morozov; Ch. VI, by V. S. Krasavtsev; Ch. VIII, by A. V. Shtoda, V. A. Sekistov, and A. G. Shiuikov; and Ch. IX, by A. Ya. Ivanov; all Docents and Candidates of Technical Sciences. The authors thank I. T. Denisov for his assistance. There are 44 references: 23 Soviet (including 2 translations), 17 English, 1 French, 1 German, and 2 unidentified.

TABLE OF CONTENTS [Abridged]:

Ch. I. Compressors	
1. Axial-flow compressors	27
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Ch. II. Gas Turbines	
3. General	83

Card 2/3

KATEV A.P.; SHIVACHEV I.P.

One theorem about the geometry of triangles. Godishnik Inzh
stroy inst it. 1964:155-164.

SHIVACHEVA, S.; KOLAROVA-PANEVA, D.

On the recurrence of certain psychoses and the role of clinical services in its prevention. (Preliminary communication). Suvrem. med., Sofia 2 no.1:53-63 '60.

1. Iz Nauchnoizsledovatelskiiia psikho-nevrologichen institut. Direktor: G. Ganev. i Katedrata po psikiatriia pri ISUL. Rukov. na katedrata: dots. Em. Sharankov.
(PSYCHOSES prev.& control)

SHIVACHEVA, S.; STOYANOV, S.; KOLAROVA, D.; KOKOSHKAROVA, A.

Experience in preventing seizures in schizophrenia patients in
remission, Zhur. nevr. i psikh. 65 no.8:1258-1265 '65,
(MIFA 18:8)

1. Psichiatricheskaya i laboratorno-eksperimental'naya sektsii
Nauchno-issledovatel'skogo instituta nevrologii i psichiatrii
(direktor - prof. G. Ganey) i kafedra psichiatrii (zaveduyushchiy -
prof. Ye. Sharankov) Instituta spetsializatsii i usovershenstvovaniya
vraчей, Sofiya.

SHIVACHEVA, I.

- (16)
- A
- | |
|---|
| 8. <u>Softs, Industrial and Economic Materials, Vol. 1, No 7, 1961</u>
(Continued) |
|---|
- C. St. TEPLOBOZH. On the Question of the Effect of High Temperature on the Properties of Synthetic Resins. (In: Chemical Engineering Institute no. 10, Institute of Synthetic Resins), pp 7-10-11.
10. "Substances and Deformention of the Beach Surface under the Influence of Substances", Doctor S. V. KAFKOVSKI, pp 7-11-12.
11. "Differential Fluctuations in Plastic Materials". In: MISCHUNI, pp 7-15-16.
12. "Dislocation Phenomena in Macromolecular Crystallization", I. KUMARASWAMY, pp 7-16-17.
13. "The Interrelation of Antibiotic and Bactericidae in Glucosid Preparation with Streptomyces Antitumor", G. ZUBER, P. V. VENKATESH, and T. R. RAMAMURTHY, pp 7-22-23.
14. "The Effect of Statistical Method Selection on New Micro Action Units in Case of Plant Hydroponic Growth", D. D. GOLIKOV and I. V. VANDENBERG, I. G. HANZLIK, pp 7-27-28.
15. "Measure of Strength of the Hydronium Ion at the Depth of 1000 Metres Under Pressure", S. S. SARKAR, pp 7-27-750.
16. "Measurement of Constant Strength of the Thermotropic and Dendritic Nitriles of the WO₃ Molar Ratio", V. V. OLEINIK, pp 7-29-76.
17. "Antagonistic Pressure in Lifting Heavy Weights", T. A. KERSEBAUM, pp 7-31-32.
18. "A Study of Physiologic Activities under Hypoxia", N. RAMPY and I. R. REED, pp 7-31-77.

240

— 23 —

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549620006-8

SHIVACHEVA, T.

Histology of lymph nodes in some domestic animals (cattle,
horses, swine). Izv Inst morf BAN 9/10;259-272 '64.

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549620006-8"

PHASE I BOOK EXPLOITATION

SOV/5159

Golenko, D.I., V.Ya. Kaplanskiy, V.P. Smiryagin, and Yu.M. Shivalin

Datchik sluchaynykh chisel na elektronnoy vychislitel'noy mashine "Strela"
(Pickup of Random Numbers on the Electronic Computer "Strela") Moscow,
Vychislitel'nyy tsentr AN SSSR, 1960. 29 p. 750 copies printed.

Sponsoring Agency: Vychislitel'nyy tsentr AN SSSR
Resp. Ed.: V.P. Smiryagin; Ed.: M.V. Yakovkin; Tech. Ed.: N.S. Popova.

PURPOSE: The booklet is intended for technical personnel concerned with
the development of computers.

COVERAGE: The booklet describes a pickup of random numbers constructed at the
Vychislitel'nyy tsentr AN SSSR (Computing Center AS USSR). The device is
one of the first operating dummies and has already solved a number of specific
problems. Its basic principles of design, problems of bench testing, and cer-
tain mathematical criteria used for checking the dummy operation are briefly
reviewed. No personalities are mentioned. There are 3 references, all Soviet

Card 1/2

ACCESSION NR: AT3012139

S/2967/63/000/000/0212/0221

AUTHORS: Golenko, D. I.; Smirugin, V. P.; Kaplanskiy, V. Ya.; Shivalin, Yu. M.

TITLE: Random number data unit for computer "Strela"

SOURCE: Voprosy* vychislitel'noy matematiki i vychislitel'noy tekhniki. Moscow, 1963, 212-221

TOPIC TAGS: data unit, random number, noise generator, pulse shaper, germanium diode, statistical criterion, weighted sum

ABSTRACT: The details of a data unit for random numbers consisting of 12 noise generators, 12 switches, 12 pulse shapers, 12 triggers, and 12 output inverters have been presented. In octal system, the random number cell is assigned the number 7757. Each electronic element is discussed in detail. The noise generator consists of a germanium diode noise element and 3 cascade amplifiers. The pulse shapers are used with triggers to ensure a uniform position distribution for the 0 and 1 digits on the triggers. To evaluate the quality of the data unit and to establish some reliability criterion for its operation, the randomness of the numbers is studied by the series method, which uses a statistical criterion to

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ACCESSION NR: AT3012139

determine the degree of association entering the random succession in the formation of numbers. Next, the uniformity of the random number distribution is determined by the Pearson criteria which uses χ^2 distribution as the weighted sum of the square of deviation between v_i and np_i , or

$$\chi^2 = \sum_{i=1}^k \frac{(v_i - np_i)^2}{np_i}$$

where v_i is the quantity of selected objects in the i-th interval and np_i - mathematical expectation of v_i in a hypothetical theoretical distribution. It is shown that the data unit satisfies both criteria and materially reduces the time for solving problems in statistics. Orig. art. has: 10 equations and 6 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 22Oct63

ENCL: 00

SUB CODE: CP

NO REF Sov: 002

OTHER: 000

Card 2/2

SHIVALOV. V. I.

20782. Shivalov. V. I. Mekhanizatsiya vygruzki i shtabelevki drevesiny puchkami,
Mekhanizatsiya truduyemikh i tyazhelykh rabot, 1949, No., s. 39-41.

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949.

DIANOV-KLOKOV,V.I.; SHIVALOV,Ye.A.

An automatic-flow refractometer. Izm. tekhn. no.2:42-45 Mr-
Ap '55. (MLRA 8:9)

(Refractometer)

L 34610-66 EWT(1) RO
ACC NR: AP6026571

SOURCE CODE: UR/0240/66/000/003/0100/0102

AUTHOR: Vulikh, A. I. (Candidate of technical sciences); Shivandronov, Yu. A. 1/3
(Candidate of technical sciences); Zagorskaya, M. K. (Candidate of technical sciences);
Bogatyrev, V. L. (Candidate of chemical sciences)

ORG: Novosibirskiy Factory of Chemical Agents (Novosibirskiy zavod khimicheskikh
reaktivov); Institute of Inorganic Chemistry, Siberian Branch, AN SSSR (Institut
neorganicheskoy khimii Sibirsogo otdeleniya AN SSSR)

TITLE: Filtering ionite gas mask

SOURCE: Gigiyena i sanitariya, no. 3, 1966, 100-102

TOPIC TAGS: gas mask, gas absorption, ion exchange resin, gas mask component,
gas filter, industrial hygiene

ABSTRACT: The authors tested in a wide range of concentrations and gas
velocities the absorption from gas-air mixtures of ammonia, amines (by
KU-2 cationite in hydrogen form), sulfur dioxide, chlorine, and hydrogen
chloride (by AV-17 and EDE-10P anionites in the hydroxyl and carbonate
forms). The basic and acidic gases were invariably completely absorbed.
The capacity of the ionites was 80-90% of the total exchange capacity, i.e.,
4 meq/g for KU-2 and about 3 meq/g for AB-17. The most universal absorbents
are the highly ionized single-function resins (KU-2, OBS-3, SEV, and AV.
The carboxyl cationites (e.g., KB-4) and anionites with secondary and tertiary

UDC: 614.894

Card 1/2

09/6 7261

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549620006-8

SIMONOV, I., kand. ikolagstvennykh nauk; SHIVANOV, A., inzh.

Transistorized generators for multitone electronic musical instruments. Radio no.9:33-36 S '69.

(MEM 19:1)

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549620006-8"

RUNOV, V.K., inzh.; SHIVANOV, V.N., inzh.; SHCHUROV, A.F., inzh.

Large slabs of silicate concrete surfacing. Stroi. mat. 7 no.3:
26-28 Mr '61. (MIRA 14:4)
(Concrete slabs) (Silicates)

AFENDUL'YEV, A.A.; PEREKHVAZOV, V.K.; SHIVAI OV, V.N.; VODICHAYEV,
I.A.; KULOV, A.Ya.

[Student's manual of calculations and diagrams in structural
mechanics] Posobie dlja studentov po vypolneniju raschetno-
graficheskikh rabot po stroitel'noi mekhanike. Gor'kij,
Inzenerno-stroit. in-ta im. V.P.Chkalova. Pt.2. 1964. 196 p.
(MNUA 14.2)

ZENGINOV, Georgi, d-r; SHIVAROV, Ivan,d-r.

=====
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1. Detska protivotuberkulozna bolnitsa-Sofiia(glaven lekar:
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Nature of the cathodic polarization of cadmium in a cyanide
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VISHOMIRSKIS, R.M. [Visomirskis, R.]; SHIVITSKIS, Yu.P. [Sivickis, J.]

Stability of electrochemical systems during the separation of
metals and hydrogen. Trudy AN Lit.SSR. Ser. B. no.2:25-35 '65.
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Self-oscillations in the electrodeposition of metals. Elektro-
khimiia 1 no.7:864-868 Jl '65. (MIRA 18:10)

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L 24196-66	EWT(m)/EWP(t)	IJP(c)	JD	SOURCE CODE: UR/0413/66/000/008/0123/0123
ACC NR: AP6013312				
INVENTOR: <u>Shivitskis, Yu. P.</u> ; <u>Vesene, T. B.</u> ; <u>Vishomirskis, R. M.</u>				24 B
ORG: none	14	21	18	
TITLE: Method of <u>electroplating with cadmium</u> , Class 48, No. 180933 [announced by the Institute of Chemistry and Chemical Technology AN Lithuanian SSR (Institut khimii i kimicheskoy tekhnologii AN Litovskoy SSR)]				
SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 123				
TOPIC TAGS: cadmium, cadmium plating, cadmium electroplating				
ABSTRACT: This Author Certificate introduces a method of electroplating with cadmium in an electrolyte containing 30 g/l cadmium oxide, 106 g/l potassium cyanide, 10 g/l caustic potash, and 14 g/l potassium carbonate. To obtain a lustrous coating α -naphthylamine sulfate is added to the initial solution to saturation and the "Progress" wetting agent is added in the amount of 2.5 ml/l. Electrolysis is carried out at 18—20°C at a current density of 1.3—3.5 A/dm ² with a periodically reversed current with a cathodic period of 15 sec and an anodic period of 3 sec. [ND]				
SUB CODE: 13/ SUBM DATE: 06Mar64/ ATD PRESS: 4 ± 45				
Card 1/1 SW UDC: 621.357.7:669.738				

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S'IVOTOVSKII, I.S.

29618

Priblizhyenny Myetod Postroyeniya kharaktyristik eyemlyesosov.-2
ob ienosye osnovniykh elyemyentov evemlyesbsa. Myekhanieatsiya stroit-Va. 1949, No.9
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SO: Letopis' No.40

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CIA-RDP86-00513R001549620006-8"

KIRILLOV, A.S.; SHIVRIN, G.N.

Comparison of hydraulic separators and hydrocyclones as classifiers.
Tsvet.met. 29 no.4:77-79 Ap '56. (MLRA 9:8)

1. Kombinat "Baleyzoloto".
(Balei--Ore dressing) (Hydrometallurgy)

67

AUTHOR: Kirillov, A.S. and Shivrin, G.N. 136-2-4/22

TITLE: Rise of Hydrocyclones in Ore Grinding and Final Grinding Cycles. (Primeneniye gidrotsiklonov dlya klassifikatsii v tsiklakh izmelcheniya i doizmelcheniya rud)

PERIODICAL: Tsvetnye Metally, 1957, no.2, pp. 14 - 21 (USSR)

ABSTRACT: The use of hydrocyclones in closed cycle with mills is discussed in this article. Information on wear in such installation in relation to the particle size is given and suggested plant layouts are illustrated. Mill productivity as a function of the content of 0.074 mm material in the feed and this content in terms of solid matter content are shown graphically. Flow-sheets are given together with information on the technical characteristics of the corresponding hydrocyclones and tabulated results obtained with one scheme at the Baleyorskaya experimental plant. The author concludes that the use of hydrocyclones opens up possibilities of increasing plant capacity without high capital investment. He thinks that hydrocyclones can not entirely replace mechanical classifiers in the grinding cycle of the raw ore, but could do so at later stages.
1/1 There are 8 figures and 2 tables and 3 Slavic references.

AVAILABLE: Library of Congress

SHIVRIN, G.N.

136-6-3/26

AUTHOR: Kirillov, A.S. and Shivrin, G.N.

TITLE: Precipitation of Gold from Cyanide Solution with Zinc
Dust. (Osazhdeniye zolota iz tsianistogo rastvora tsinkovoy
pyl'yu)

PERIODICAL: Tsvetnyye Metally, 1957, No.6, pp. 18-21 (USSR)

ABSTRACT: At the Baley Experimental Works (Baleyskaya optytnaya fabrika) a process for precipitating gold from cyanide solutions with zinc dust has been under test for a long time. Standard equipment was made by the Trud Works with a rated productivity of 250 m³/day was used. Two tables and a graph based mainly on data obtained in 1955-1956 are shown in the present article which discusses various features of the process: all data referring to gold are in arbitrary, unspecified units. No appreciable effect on gold precipitation was observed from the following factors: changes in cyanide and alkali concentrations in the ranges 0.023-0.037% NaCN and 0.005-0.017% CaO, respectively, in the absence of harmful impurities: increase in productivity of the installation to 170-200% of the rated value, provided a sufficient zinc-cake thickness exists in the precipitator. The cake thickness is a very important factor in the process and is secured by charging 1.5 kg of zinc dust per m² of filtering surface of the precipitator immediately after washing.

Card 1/2

136-6-3/26

Precipitation of Gold from Cyanide Solution with Zinc Dust.

There are 2 tables.

AVAILABLE: Library of Congress

Card 2/2

LASKORIN, ...; SHIVRIN, G.N.; PLAKSIN, I.N.

Liquid extraction of complex cyanide compounds of gold and
silver from alkaline solutions. Dokl. AN SSSR 139 no. 5:1170-
1172 Af 1961.
(MIRA 14:8)

1. Chlen-korrespondent AN SSSR (for Plaksin).
(Gold cyanide) (Silver cyanide) (Complex compounds)

PLAKSIN, I.N.; LASKORIN, B.N., dotor tekhn.nauk; SHIVRIN, G.N., inzh.

Liquid extraction of complex gold and silver cyanides from
cyanide solutions. TSvet.met. 34 no.9:20-23 S '61.
(MIRA 14:10)

1. Chlen-korrespondent AN SSSR (for Plaksin).
(Cyanide process)

SHVARTZ, L.N.; SHVARTZ, Yel.

Type of sulfide-sulfur relationships in rapid sedimentation analysis.
Lekts. v tsentr. nauch.-issled. inst. po gosp. i prirodn. res. (MIRA 18:3)
voprosy seleno-antimoniyan metallov. Kafedra obogashcheniya
i otseleniya ruda i mineralov

PLAKIN, I.N.; SHIVRIN, G.N.

Regularities of the extractive distribution of cyanic noble metal complexes. Izv.vys.ucheb.zav.; tsvet.met. 8 no.2
60-57 '65. (MIRA 19:1)

I. Kafedra metallurgii tyazhelykh tsvetnykh i blagorodnykh metallov Krasnoyarskogo instituta tsvetnykh metallov. Submitted October 9, 1963.

SHIVRIN, O.N.

X-ray examination of the structural changes of steel surface
layers machined by grinding. Izv. AN SSSR. Ser.fiz.20:736-739
Jl '56. (MLRA 9:11)

1. Karelo-Finskiy gosudarstvennyy universitet.
(X rays--Industrial applications) (Steel--Metallography)

S/137/60/000/011/028/043
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 11, p. 237,
27141

AUTHOR: Shivrin, O.N.

TITLE: Roentgenographical Investigation of Surface Cold Hardness Arising
During the Turning of Steel

PERIODICAL: Uch. zap. Petrozavodskogo in-ta, 1957 (1958), Vol. 5, No. 4,
pp. 74 - 85

TEXT: An attempt was made to establish a regular correlation between the magnitude of structural distortions and the cutting conditions, as well as between individual types of distortion. Annealed St.2, St.40 and St.45 steel specimens were examined. A part of the St.40 and St.45 specimens were investigated in normalized state. The distortions were measured on the (310) and (220) lines. It is shown that stresses of the first order, arising during the turning, are a result of the effect of two competing factors - i.e. a mechanical (cold hardening) and a thermal one. The arising of stresses of the first order is

Card 1/2